



US DEPARTMENT OF DEFENSE

# BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

## Protective Equipment

### Improvement and Extension of Auditory Hazard Models

This study is performed by researchers at US Army Aeromedical Research Laboratory (USAARL) and funded by the Defense Medical Research and Development Program (DMRDP) which is managed by the Congressionally Directed Medical Research Program (CDMRP). The objective of this project is to fully document the effects of acoustic impulses on the middle ear and middle-ear muscle contractions (MEMC). This project will evaluate how the middle ear musculature reacts to warned and unwarned exposures to acoustic impulses, and if participants can be trained to react with this potentially protective reflex. This information is necessary for the development of damage risk criteria and health hazard assessment methods for exposure to high-level acoustic impulses such as experienced by users of military weapon systems and high-level impulsive noises such as from blasts. During FY16, the investigators completed the initial portion of the study by evaluating the rates of acoustic reflex prior to any training. In the upcoming year, investigators will examine if the MEMC reflex can be classically conditioned in a laboratory setting. Knowledge from this study could inform the development of training to boost the protective MEMC in Service Members.

